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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: John Thomas Hare

Group Art Unit: 3641

Serial No.: 08/793,416

Examiner: Behrend

Filed : 10/23/1997

Title : MOULDED RADIATION SHIELD

TRANSMITTAL OF SUPPLEMENTAL APPEAL BRIEF

Commissioner of Patents
and Trademarks
PO Box 1450
Alexandria, VA 22313-1450

Sir:

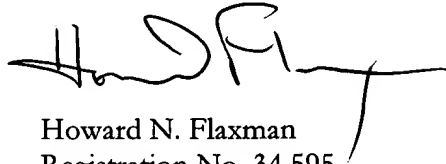
In response to the Notification of Non-Compliant Appeal Brief of May 3, 2005, Appellant submits the attached Supplemental Appeal Brief (in triplicate) in compliance with 37 CFR 41.37.

With this in mind, the Status Of The Claims has been corrected to refer to canceled claims 27-29. In addition, the Summary Of The Claimed Subject matter has been amended so as to remove references to the slit being unsealed along its length (although Appellant maintains the position that such structure is inherently disclosed in the Specification and explicitly shown in the Figures). As to Issues 2 and 3 in the Grounds Of Rejection To Be Reviewed On Appeal, they have been revised as suggested in the Office Action so as to clarify that the rejections are based upon "any of" the listed references. Finally, Appellant has split previous Issue 4 into three separate issues, which are separately addressed during the Arguments section.

As the Supplemental Appeal Brief is now believed to comply with Rule 41.37 and address the informalities noted in the Notice, Appellant respectfully request that the Supplemental Appeal Brief be considered and urges the Office to contact the undersigned if additional information is required.

If additional fees are required in conjunction with this filing, the Director is authorized to charge this to Deposit Account No. 01-2221.

Respectfully submitted,



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Our Docket No. ITW-12287



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Sir:

REAL PARTY IN INTEREST

Illinois Tool Works, Inc. is the real party in interest in the above referenced patent application.

RELATED APPEALS AND INTERFERENCES

Neither Appellants' representative, Appellants nor Appellants' Assignee are aware of any related appeals and/or interferences affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 20-26 are currently pending and stand finally rejected. Claims 1-19 and 27-29 have been canceled. Claims 30-38 have been withdrawn from consideration. Appellants accordingly appeal the Examiner's final rejection of claims 20-26.

STATUS OF AMENDMENTS

No Amendments have been filed subsequent to the issuance of the Final Rejection. All amendments filed prior to the Final Rejection have been entered and considered.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 20 is the only independent claim involved in the present Appeal. None of the dependent claims depending from claim 20 are argued separately and, therefore, these claims are not addressed in the present Summary in accordance with 37 CFR 41.37(c)(1)(v).

Referring in particular to Figure 2, a moulded shield is provided for a source of γ - rays. The shield includes a cylindrical shield body having a cavity shaped and dimensioned for receiving the source. The shield includes a core layer 30 of cured liquid silicone resin loaded with particulate γ radiation-shielding material. The core layer 30 is adapted to surround the radiation source located in the cavity. The core layer 30 is located between two outer layers 40 of solid polymeric material.
(Page 3, lines 9-13 of the Specification as originally filed)

The shield is formed in the shape of a tube including an inner face, an outer face and a longitudinal slit 4 for fitting over a pipe so as to permit the passage of the source into the cavity.
(Page 5, lines 2-6, and Page 6, lines 18-22, of the Specification as originally filed)

The slit 4 is preferably formed such that when the tube is closed over the pipe, the protection provided by the tube is unbroken. The slit 4 extends from the inner face to the outer face at an oblique angle relative to the radius of the shield body. (Page 7, lines 2-5, of the Specification as originally filed)

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 20-26 stand properly rejected under 35 USC § 103(a) as being unpatentable over any of U.S. Patent No. 3,515,625 to Sedlak et al. (Sedlak) or U.S. Patent No. 3,864,124 to Breton et al. (Breton) or GB Patent No. 954,595 to Weinberger (Weinberger) in view of any of U.S. Patent No. 2,312,920 to Lubow (Lubow), U.S. Patent No. 2,286,877 to Sternlicht (Sternlicht), U.S. Patent No. 3,311,933 to Allen (Allen), GB Patent No. 856,747 to Futo et al. (Futo), or U.S. Patent No. 2,063,329 to Morrison (Morrison).
2. Whether claims 20-26 stand properly rejected under 35 USC § 103(a) as being unpatentable over any of Sedlak or Breton or Weinberger in view of any of Lubow, Sternlicht, Allen, Futo or Morrison, and further in view of U.S. Patent No. 3,675,060 to Harrison (Harrison) and any of U.S. Patent No. 2,175,283 to Cote (Cote), U.S. Patent No. 4,748,060 to Fry et al. (Fry) or U.S. Patent No. 4,857,371 to McClintock (McClintock).

3. Whether claims 20-26 stand properly rejected under 35 USC § 103(a) as being unpatentable over any of Sedlak or Breton or Weinberger in view of any of Lubow, Sternlicht, Allen, Futo or Morrison, and further in view of any of U.S. Patent No. 2,497,543 to Frevel (Frevel), U.S. Patent No. 2,830,000 to Labino (Labino), Japanese Patent No. 0052799 ('799 patent) or U.S. Patent No. 3,895,143 to Tarlow (Tarlow).
4. Whether claims 20-26 stand properly rejected under 35 USC § 112, first paragraph, as failing to comply with the written description requirement
5. Whether claims 20-26 stand properly rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement.
6. Whether claims 20-26 stand properly rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

ARGUMENTS

I. CLAIMS 20-26 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) BASED UPON THE DISCLOSURE OF SEDLAK OR BRETON OR WEINBERGER IN VIEW OF LUBOW, STERNLICHT, ALLEN, FUTO OR MORRISON.

Claim 20 defines a moulded shield for a source of γ -rays. The moulded shield includes a cylindrical shield body having a cavity shaped and dimensioned to receive the source. The shield body is constructed in the form of a tube with an inner face and an outer face, and a longitudinal slit for fitting over a pipe so as to permit the passage of the source into the cavity. The slit extends from the inner face to the outer face at an oblique angle relative to the radius of the shield body and the slit is unsealed along its length to facilitate the passage of the source therethrough. The shield

body further includes a core layer of cured liquid silicone resin loaded with particulate γ -radiation shielding material adapted to surround a radiation source located in the cavity. The core layer is located between the two outer layers of the solid polymeric material.

In establishing the law governing obviousness-type rejections, the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. . . This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act.

With the foregoing in mind, the U.S. Patent & Trademark Office has determined that a *prima facie* case of obviousness is established by meeting three basic criteria. First, the Examiner must show some suggestion or motivation to modify the reference or to combine reference teachings. Second, the Examiner must show a reasonable expectation of success in modifying the primary reference based upon the teachings of the prior art. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Support for the proposed modification and the reasonable expectation of success must be found in the prior art. MPEP 706.02(j). It has further been determined that "[w]here a reference is relied on to support a rejection, whether or not in a minor capacity, that reference should be positively included in the statement of the rejection."

See *In re Hoch*, 428 F.2d 1341, 1342 n.3 166 USPQ 406, 407, n. 3 (CCPA 1970).

In addressing claim 20, the Examiner has agreed that none of the primary references, that is, Sedlak, Breton or Weinberger, disclose a shield having an obliquely oriented, unsealed slit in conjunction with a cylindrical shield body as claimed. In fact, these references merely disclose radiation shielding materials. Lubow, Sternlicht, Allen, Futo and Morrison have been cited as suggesting the obviousness of modifying Sedlak or Breton or Weinberger with an obliquely angled, unsealed slit in conjunction with a cylindrical shield body. However, these prior art references merely disclose various seams used in protective materials. They do not disclose the obviousness of applying the claimed slit to a cylindrical shield body having a core layer of liquid silicone resin loaded with particulate γ -radiation material. In addition, these references fail to even disclose an obliquely angled, unsealed slit as claimed.

The highly specific nature of the shield body material dictates that its construction is very distinct from prior radiation shields and it would, as such, not have been obvious based upon the cited prior art to provide a cylindrical shield with an obliquely angled, unsealed slit as claimed. The present shield includes an obliquely angled, unsealed slit for a variety of reasons. The slit first provides enhanced protection from shine by preventing the direct emission of radiation therethrough. In addition, all materials expand and contract, and the angled, unsealed slit allows for the edges to ride upon each other without compromising the protection being offered by the shield.

Nothing in the prior art addresses these concerns as the cited prior art devices are structurally different from the claimed invention and, consequently, address very different and unrelated issues. For example, Morrison discloses a two-part shield having first and second portions which are secured together. Sternlicht and Lubow disclose protective gloves having stitched seams.

Allen discloses a container having rigidly sealed edges. Futo discloses blocks which are stacked to create a shield. None of these references disclose a flexible, moulded shield composed of a cylindrical shield body formed from a cured liquid silicone resin having a slit extending at an oblique angle relative to the radius of the shield body, wherein the slit is unsealed along its length to facilitate the passage of the source therethrough. Rather, the teaching references disclose a variety of sealed structures, none of which are adapted for ready attachment to a source of γ - rays.

With the foregoing in mind, the outstanding rejection fails on all accounts to establish a *prima facie* case of obviousness. First, the Examiner has failed to show some suggestion or motivation to modify the references or to combine the reference teachings. As discussed above, the teaching references are not analogous to the base references and provide no teaching or suggestion to modify the base references to read upon the pending claims. The Office Action further fails to show a reasonable expectation of success in modifying the primary references based upon the teachings of the prior art. The teaching references are once again not analogous to the primary references and one would certainly not look to these references for modification related teachings. In addition, the prior art fails to disclose all elements of the claimed invention; that is, a shield composed of a cylindrical body with an obliquely oriented, unsealed slit as claimed.

In an effort to support the rejection and the interpretation of the pending claims, the Examiner argues that the language relating to the unsealed nature of the slit should be given limited weight in distinguishing the claimed invention from the prior art. The Examiner states that “applicants’ claims do not recite the slit as remaining ‘unsealed’ at all times”. While this may be true, the prior art cited by the Examiner offers no suggestion for providing an unsealed, obliquely angled slit in a radiation shield such that the shield may be placed over a source of radiation, regardless of

the fact of whether the slit is later sealed. The disclosures of Lubow, Sternlicht, Allen, Futo and Morrison all teach shields *per se* that must be sealed along their edges to function properly. Without sealed edges none of these references function, as there is nothing to hold them together.

The weakness of the outstanding rejection is demonstrated by the many references cited by the Examiner. Rather than citing the “best” prior art, the Examiner has cited seven references apparently with the hope that one of the combinations reads on Appellants’ invention. Despite this effort, no combination of references obviates the claimed invention.

With the foregoing in mind, it is Appellants’ opinion the rejection of claim 20 is improper. Appellants, therefore, respectfully request that the rejection of claim 20 be reversed. As to those claims dependent upon claim 20, they are believed to be improper for the reasons presented above with regard to independent claim 20 and Appellants similarly request that the rejections relating to these claims be reversed.

II. CLAIMS 20-26 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) BASED UPON THE DISCLOSURE OF SEDLAK OR BRETON OR WEINBERGER IN VIEW OF LUBOW, STERNLICHT, ALLEN, FUTTO OR MORRISON AND FURTHER IN VIEW OF HARRISON AND COTE, FRY OR McCLINTOCK.

Harrison, Cote, Fry and McClintock have been presented as teaching the obviousness of wrapping sheet material around a pipe such that the cut ends abut each other when the sheet is wrapped around the pipe. In fact, the Examiner notes in the Office Action of December 26, 2001, that “it is a notoriously well known expedient that in forming a shielding type material for around a pipe, to form said shielding type material into a tubular shape with a longitudinal slit to facilitate mounting to the pipe, as evidenced for example by the teachings thereof in any of the secondary

references of Cote, Fry et al. or McClintock and to so modify any of the primary references would accordingly have been prime facie obvious”.

As such, Harrison, Cote, Fry and McClintock are directed to issues other than the utilization of an obliquely angled, unsealed slit in a cylindrical radiation shielding device as claimed and none address the deficiencies found in Lubow, Sternlicht, Allen, Futo or Morrison in modifying Sedlak or Breton or Weinberger. In particular, neither Harrison, Cote, Fry nor McClintock disclose or suggest the obviousness of modifying Sedlak or Breton or Weinberger with a cylindrical body having an obliquely angled, unsealed slit for minimizing shine penetrating through the shield material.

In fact, it is Appellants’ opinion that the citation of such tubular shields as those disclosed by Harrison, Cote, Fry and McClintock ultimately supports Appellants’ contention of nonobviousness. Specifically, if the claimed obliquely angled, unsealed slit within a moulded radiation shield asserted as being obvious by the Examiner where in fact obvious, would not a prior art reference similar to Harrison, Cote, Fry or McClintock be available which discloses an obliquely angled, unsealed slit in a tubular shield. Rather, the modification is not in fact obvious and the Examiner has chosen to improperly combine a variety of nonanalogous references based upon a hindsight analysis of the claimed invention.

As such, and further to the reasons presented above in Section I, it is Appellants’ opinion that claim 20 overcomes the prior art of record and Appellants respectfully request that the rejection under 35 U.S.C. § 103(a) be reversed. As to those claims dependent upon independent claim 20, they are also believed to overcome the prior art of record and Appellants similarly request that the rejection of these dependent claims be reversed.

III. CLAIM 20-26 ARE NOT OBVIOUS UNDER 35 U.S.C. § 103(a) BASED UPON THE DISCLOSURE OF SEDLAK OR BRETON OR WEINBERGER IN VIEW OF LUBOW, STERNLICHT, ALLEN, FUTO OR MORRISON AND FURTHER IN VIEW OF FREVEL, LABINO, THE '799 PATENT OR TARLOW.

Frevel, Labino, the '799 patent and Tarlow have been cited in addition to the rejection presented above in Section I. Presumably, and with reference to the Office Action of June 17, 2002, these references are cited as showing "that it is old and advantageous and hence obvious to wrap around the pipe carrying radioactive material, radiation shielding material in sheet form". Further, and with reference to the Office Action of June 17, 2002, the Examiner states "it is conventionally known to utilize radiation shielding for pipes carrying a radiation emitting source and it would have been obvious on its face to so utilize the radiation shielding of any of the primary references. In any event, such would have been obvious in view of the teachings thereof in any of Frevel, Labino or Japan 0052799".

Appellants do not contest that it is known to wrap shielding material around radiation carrying pipes, however, and as with the prior art discussed above with regard to Sections I and II, nothing cited by the Examiner discloses or suggests the obviousness of providing the claimed shielding material with an obliquely angled, unsealed slit for positioning about a pipe carrying a source of radiation.

With this in mind, it is Appellants' opinion that claim 20 overcomes the prior art of record and the rejection under 35 U.S.C. §103(a) is improper. As such, Appellants respectfully request that the rejection there of be reversed. As to those claims dependent upon independent claim 20, they are also believed to overcome the prior art of record and Appellants similarly request that the rejection of these dependent claims be reversed.

IV. CLAIMS 20 - 26 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 112, FIRST PARAGRAPH, AS FAILING TO COMPLY WITH THE WRITTEN DESCRIPTION REQUIREMENT.

The present rejection relates to claim language concerning the passage of a γ -radiation source (for example, a pipe through material emitting γ - rays is passing) through an unsealed slit and the support for such claim language in the original disclosure.

The original disclosure is very detailed in providing support for claiming that the “slit is unsealed along its length to facilitate the passage of the source therethrough”. In particular, and with reference to Page 3, lines 11-13, the Specification states that the moulded shield is “adapted to surround a radiation source located in said cavity, said core layer being located between two outer layers of solid polymeric material”. Further, and with reference to Page 6, lines 18-22, it is stated that “the shield may be in the form of a tube 2 (Figure 1) with a longitudinal slit 4 and which because it is made of resilient material, can be opened along the slit so that it can be pushed over a length of pipe and then closed over the pipe, e.g. by the use of quick-locking plastic straps (not shown) of the well known kind such as used in ties in horticulture”. In addition, Page 7, lines 2-3 state “to reduce or eliminate shine, the slit is preferably so formed that when the tube is closed over the pipe, the protection provided by the tube is unbroken”.

With the foregoing in mind, and with reference to the various figures provided in conjunction with the application, it is inconceivable that one of ordinary skill in the art would not understand how “the slit is unsealed along its length to facilitate the passage of the source [for example, a pipe carrying a source of gamma rays] therethrough” and that the Specification as originally filed provides support for such language. While the Specification as originally filed does not use the same exact language as that used in claims 20-26, the Specification as originally filed

explains that the moulded shield along its slit is passed over a pipe so as to cover it, the drawings support this disclosure and the original disclosure says that the slit is flexible enough to fit about the pipe thereby enclosing it.

With this in mind, it is Appellants' opinion that the Specification is in compliance with the written description requirement as it relates to the claimed structure. While the language utilized in the claims may not be exactly that which is utilized in the Specification, one of ordinary skill in the art would certainly appreciate the meaning of this language, understand where in the Specification it is described and understand how to make and use such a moulded shield.

With this in mind, Appellants respectfully request that this rejection be reversed.

V. CLAIMS 20 - 26 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 112, FIRST PARAGRAPH, FOR FAILING TO COMPLY WITH THE ENABLEMENT REQUIREMENT.

As with the rejection discussed above, this rejection relates to claim language concerning the passage of a γ -radiation source (for example, a pipe through material emitting γ - rays is passing) through an unsealed slit and the support for such claim language in the original disclosure.

The original disclosure is very detailed in providing support for claiming that the "slit is unsealed along its length to facilitate the passage of the source therethrough". In particular, and with reference to Page 3, lines 11-13, the Specification states that the moulded shield is "adapted to surround a radiation source located in said cavity, said core layer being located between two outer layers of solid polymeric material". Further, and with reference to Page 6, lines 18-22, it is stated that "the shield may be in the form of a tube 2 (Figure 1) with a longitudinal slit 4 and which because it is made of resilient material, can be opened along the slit so that it can be pushed over a length of pipe and then closed over the pipe, e.g. by the use of quick-locking plastic straps (not

shown) of the well known kind such as used in ties in horticulture". In addition, Page 7, lines 2-3 state "to reduce or eliminate shine, the slit is preferably so formed that when the tube is closed over the pipe, the protection provided by the tube is unbroken".

With the foregoing in mind, and with reference to the various figures provided in conjunction with the application, it is inconceivable that one of ordinary skill in the art would not understand how "the slit is unsealed along its length to facilitate the passage of the source [for example, a pipe carrying a source of gamma rays] therethrough" and understand how to practice the claimed invention. The Specification as originally filed explains that the moulded shield along its slit is passed over a pipe so as to cover it. The drawings support this disclosure. The original disclosure says that the slit is flexible enough to fit about the pipe thereby enclosing it.

With this in mind, it is Appellants' opinion that the Specification is enabling of the claimed structure. While the language utilized in the claims may not be exactly that which is utilized in the Specification, one of ordinary skill in the art would certainly appreciate the meaning of this language, understand where in the Specification it is described and understand how to make and use such a moulded shield.

With this in mind, Appellants respectfully request this rejection be reversed.

VI. CLAIMS 20 - 26 ARE NOT UNPATENTABLE UNDER 35 U.S.C. §112, SECOND PARAGRAPH, AS BEING INDEFINITE FOR FAILING TO PARTICULARLY POINT OUT AND DISTINCTLY CLAIM THE SUBJECT MATTER WHICH APPLICANT REGARDS AS THE INVENTION.

As with prior rejections relating to 35 U.S.C. §112, this rejection relate to claim language concerning the passage of a γ -radiation source (for example, a pipe through material emitting γ - rays is passing) through an unsealed slit and the support for such claim language in the original

disclosure.

The original disclosure is very detailed in providing support for claiming that the “slit is unsealed along its length to facilitate the passage of the source therethrough”. In particular, and with reference to Page 3, lines 11-13, the Specification states that the moulded shield is “adapted to surround a radiation source located in said cavity, said core layer being located between two outer layers of solid polymeric material”. Further, and with reference to Page 6, lines 18-22, it is stated that “the shield may be in the form of a tube 2 (Figure 1) with a longitudinal slit 4 and which because it is made of resilient material, can be opened along the slit so that it can be pushed over a length of pipe and then closed over the pipe, e.g. by the use of quick-locking plastic straps (not shown) of the well known kind such as used in ties in horticulture”. In addition, Page 7, lines 2-3 state “to reduce or eliminate shine, the slit is preferably so formed that when the tube is closed over the pipe, the protection provided by the tube is unbroken”.

With the foregoing in mind, and with reference to the various figures provided in conjunction with the application, it is inconceivable that one of ordinary skill in the art would not understand how “the slit is unsealed along its length to facilitate the passage of the source [for example, a pipe carrying a source of gamma rays] therethrough” and appreciate that which Applicants regard as the invention. The Specification as originally filed explains that the moulded shield along its slit is passed over a pipe so as to cover it. The drawings support this disclosure. The original disclosure says that the slit is flexible enough to fit about the pipe thereby enclosing it.

With this in mind, it is Appellants’ opinion that claims 20-26 distinctly claim and point out the subject matter of the invention. While the language utilized in the claims may not be exactly that which is utilized in the Specification, one of ordinary skill in the art would certainly appreciate the

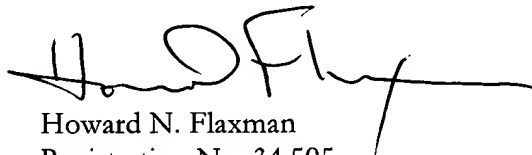
meaning of this language, understand where in the Specification it is described and understand how to make and use such a moulded shield.

With this in mind, Appellants respectfully request that all of this rejection be reversed.

VII. CONCLUSION

In conclusion, Appellants have now shown that the references cited in the Office Action neither disclose nor suggest the claimed shield. In addition, Appellants have now shown that the claims and Specification are in compliance with § 112. Therefore, it is respectfully requested that the outstanding rejections of claims 20-26 be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'H. N. Flaxman', with a long horizontal stroke extending to the right.

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CLAIMS APPENDIX

20. A moulded shield for a source of γ -rays, comprising:

a cylindrical shield body having a cavity shaped and dimensioned to receive the source, the shield body being in the form of a tube with an inner face, an outer face and a longitudinal slit for fitting over a pipe so as to permit the passage of the source into the cavity, the slit extending from the inner face to the outer face at an oblique angle relative to the radius of the shield body and the slit is unsealed along its length to facilitate the passage of the source therethrough;

the shield body including a core layer of cured liquid silicone resin loaded with particulate γ radiation-shielding material adapted to surround a radiation source located in the cavity, the core layer being located between two outer layers of solid polymeric material.

21. The shield according to claim 20, wherein the particulate radiation shielding material comprises lead particles.

22. The shield according to claim 20, wherein the core is encapsulated in the solid polymeric material.

23. The shield according to claim 20, wherein the solid polymeric material comprises cured liquid resin.

24. The shield according to claim 23, wherein the solid polymeric material comprises silicone.
25. The shield according to claim 20, wherein the outer layers are each 0.5 to 3mm thick.
26. The shield according to claim 20, wherein the core layer is 5 to 50mm thick.

EVIDENCE APPENDIX

Not Applicable

RELATED PROCEEDINGS APPENDIX

Not Applicable